No. 200000123

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Holden's Foundation Seeds L.L.C.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN UCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY CTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'LH245'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of January, in the year two thousand two.

Attest:

Paul M. Zahnd

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
HOLDEN'S FOUNDATION SEEDS L.L.C.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
Ex4905

3. VARIETY NAME
LH245

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
503 S. MAPLEWOOD AVENUE
PO BOX 839
WILLIAMSBURG, IA 52361

5. TELEPHONE *(include area code)*
(319)668-1100

6. FAX *(include area code)*
(319)668-2453

FOR OFFICIAL USE ONLY

PVPO NUMBER
0000123

FILING DATE
1-7-00

7. GENUS AND SPECIES NAME
ZEA MAYS

8. FAMILY NAME *(Botanical)*
GRAMINEAE

9. CROP KIND NAME *(Common name)*
CORN, FIELD

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
LIMITED LIABILITY COMPANY

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION
DECEMBER 1, 1997

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE 1-7-00
CERTIFICATION FEE: $ 320.00
DATE 1/22/02

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
MR. MARK ARMSTRONG
HOLDEN'S FOUNDATION SEEDS L.L.C.
503 S. MAPLEWOOD AVENUE
PO BOX 839
WILLIAMSBURG, IA 52361

14. TELEPHONE *(include area code)*
(319)668-1100

15. FAX *(include area code)*
(319)668-2453

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of the Variety
- d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES *(If "yes," give names of countries and dates)* ☒ NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* GARY ARTHUR		NAME *(Please print or type)*	
CAPACITY OR TITLE PRESIDENT	DATE 1/3/00	CAPACITY OR TITLE	DATE

Origin and Breeding History of the Inbred

Exhibit A

LH245 was developed from the single cross LH198 x Ex2323 by selfing and using the pedigree system of plant breeding. Yield, stalk quality, root quality, disease tolerance, late plant greenness, late plant intactness, ear retention, pollen shedding ability, silking ability and corn borer tolerance were the criteria used to determine the rows from which ears were selected.

LH198 and Ex2323, the progenitors of LH245, are both proprietary field corn inbred lines of Holden's Foundation Seeds, LLC. In 1991, Holden's Foundation Seeds, LLC applied for plant variety protection of LH198. LH198 was awarded certificate #9200021 on March 31, 1993. A utility patent from the U.S. Patent Office also protects LH198. Holden's was issued patent #5,304,717 for LH198 on April 19, 1994. Ex2323 is a finished line developed in 1989, but was never released by Holden's for sale to the public. It has only been used privately as a line development breeding source. The progenitors of Ex2323 are B73 and Pioneer Brand hybrid 3377. B73 (Iowa SSS C5 Sel.) was developed by Iowa State University and released to the public in 1972. Pioneer Brand hybrid 3377 was developed by Pioneer Hi-Bred International, Inc., of Johnston, Iowa. Pioneer Brand hybrid 3377 was a popular hybrid marketed by Pioneer in the early 1980's.

Enclosed is a copy of a letter from Seed Branch of the USDA confirming that no other field corn inbreds have been named, 'LH245'.

On the following pages are a summary and description of the development of LH245. Also included are copies of pages from Holden's Foundation Seeds, Inc. nursery books. The rows associated with the development of LH245 have been highlighted.

LH245 has shown uniformity and stability for all traits described in Exhibit C. It has been self-pollinated and ear-rowed a sufficient number of generations, with careful attention to uniformity of plant type to ensure homozygosity and phenotypic stability. The line has been increased both by hand (Iowa 1997 and 1998) and sibbed in isolated production fields (Hawaii 1999 and Iowa 1999) with continued observations for uniformity. Donald G. Eggerling, the originating plant breeder, has observed LH245 all four generations it has been increased. The line is uniform, stable and no variant traits have been observed or are anticipated in LH245.

Origin and Breeding History of the Inbred
LH245=Ex4905=LH198 x Ex2323

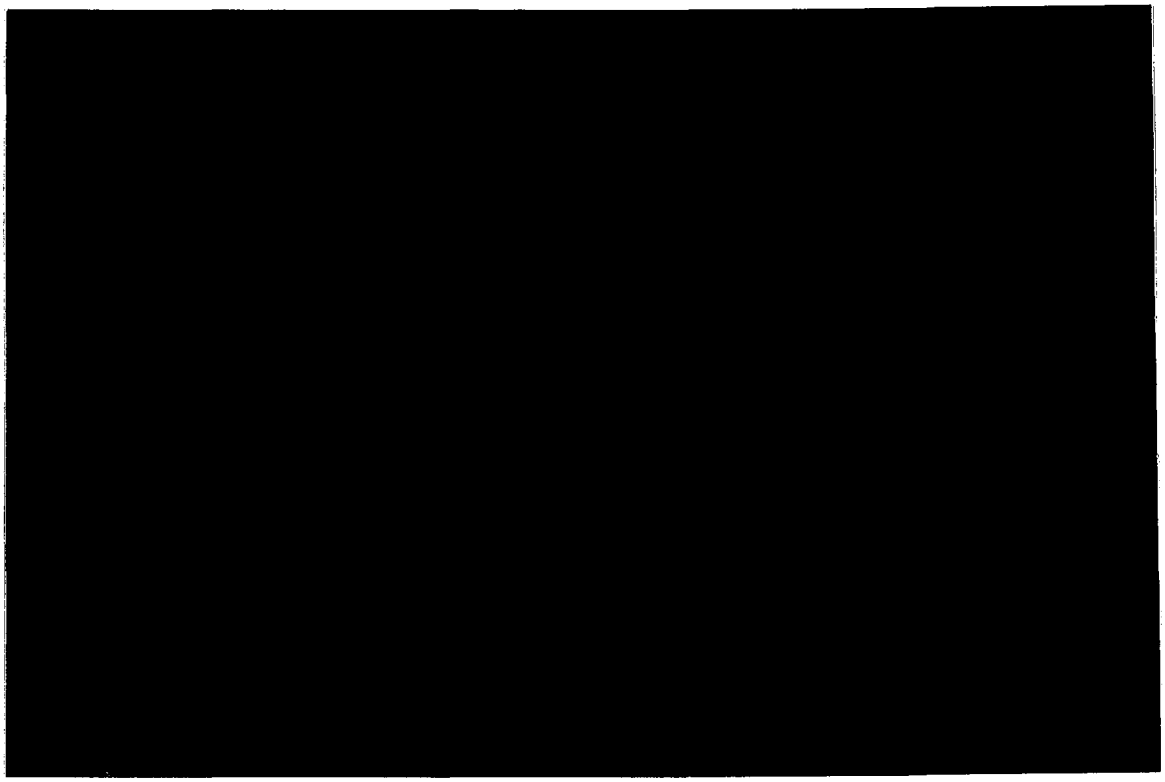
Field/Row	Pedigree	Location	Year
Frimml	LH245	Iowa	1999
KA1A1	LH245	Hawaii	1999
24249-24260	Ex4905	Iowa	1998
19722	LH198 x Ex2323 @7	Iowa	1997
33874	LH198 x Ex2323 @6	Iowa	1996
12476	LH198 x Ex2323 @5	Hawaii	1996
45415	LH198 x Ex2323 @4	Iowa	1995
5520	LH198 x Ex2323 @3	Hawaii	1995
1696	LH198 x Ex2323 @2	Iowa	1994
10378	LH198 x Ex2323 @1	Iowa	1993
44169	LH198 x Ex2323	Iowa	1992
40571 40568	Ex2323 LH198	Iowa	1991

Novelty Statement

Exhibit B

LH245 is most similar to LH198. However, the most distinguishing difference is anther color. The anther color of LH245 is red while the anther color of LH198 is light purple. When using Munsell Color Charts for Plant Tissues as a reference, the anther color of LH245 would be classified as 5R 4/4 and the anther color of LH198 would be classified as 5RP 5/4. The photograph below illustrates this difference in anther color.

Anthocyanin is moderately present in the brace roots of LH245. Anthocyanin is also present in the brace roots of LH198, but it is much darker and distinct.



FORM SD-470-28
(9-1-92)

EXHIBIT C
(Corn; Maize)

United States Department of Agriculture, Agricultural Marketing Service
Science Division, Plant Variety Protection Office
National Agricultural Library Building, Room 500
Beltsville, MD 20705

000000123

OBJECTIVE DESCRIPTION OF VARIETY
CORN (*Zea mays* L.)

Name of Applicant(s)	Variety Seed Source	Variety Name or Temporary Designation
HOLDEN'S FOUNDATION SEEDS, L.L.C.	IOWA 1998	LH245

Address (Street & No., or R.F.D. No., City, State, Zip Code and Country)
503 SOUTH MAPLEWOOD AVENUE
WILLIAMSBURG, IA 52361

FOR OFFICIAL USE

PVPO Number

Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by a '*' are considered necessary for an adequate variety description and must be completed.

COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices; describe #25 and #26 in Comments section):

01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff
02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan
03=Dark Green	08=Yellow-Orange	13=Cherry Red	18=Colorless	23=Brown
04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze
05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)
				26=Other (Describe)

STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):

Yellow Dent Families:

Family	Members
B14	CM105, A632, B64, B68
B37	B37, B76, H84
B73	N192, A679, B73, NC268
C103	Mo17, Va102, Va35, A682
Oh43	A619, MS71, H99, Va26
WF9	W64A, A554, A654, Pa91

Yellow Dent (Unrelated):
Co109, ND246,
Oh7, T232
W117, W153R
W182BN

White Dent:
CI66, H105, Ky228

Sweet Corn:
C13, Iowa5125, P39, 2132

Popcorn:
SG1533, 4722, HP301, HP7211

Pipecorn:
Mo15W, Mo16W, Mo24W

1. TYPE: (describe intermediate types in Comments section)

* 2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn

Standard Inbred Name B73

2

2. REGION WHERE DEVELOPED IN THE U.S.A.:

* 2 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other _____

Standard Seed Source IOWA STATE UNIV.

2

3. MATURITY (In Region Best Adaptability: show Heat Unit formula in "Comments" section):

	DAYS	HEAT UNITS		DAYS	HEAT UNITS
*	73	14845	From emergence to 50% of plants in silk	75	15405
*	71	14260	From emergence to 50% of plants in pollen	73	14845
	___	_____	From 10% to 90% pollen shed	___	_____
(*)	___	_____	From 50% silk to optimum edible quality	___	_____
	___	_____	From 50% silk to harvest at 25% moisture	___	_____

4. PLANT:	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 2069 cm Plant Height (to tassel tip)	7.97	50	1983	8.50	50
* 759 cm Ear Height (to base of top ear node)	8.55	50	999	5.21	50
116 cm Length of Top Ear Internode	.83	50	99	1.07	50
00 Average Number of Tillers	0.0	50	0.0	0.0	50
* 1.0 Average Number of Ears per Stalk	0.0	50	1.7	.40	50
3 Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark			3		

5

Application Variety Data	Page 2		Standard Inbred Data 20000123	
5. LEAF:	Standard Deviation	Sample Size	Standard Deviation	Sample Size
* 9.1 cm Width of Ear Node Leaf	1.32	50	9.5 .70	50
* 77.7 cm Length of Ear Node Leaf	3.60	50	78.5 3.86	50
* 6 Number of leaves above top ear	.36	50	5 .56	50
7 degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf)	2.84	50	17 3.98	50
* 02 Leaf Color (Munsell code 5GY 3/4)			02 (Munsell code 5GY 4/4)	
7 Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)			4	
3 Marginal Waves (Rate on scale from 1=none to 9=many)			1	
3 Longitudinal Creases (Rate on scale from 1=none to 9=many)			3	
6. TASSEL:	Standard Deviation	Sample Size	Standard Deviation	Sample Size
* 6 Number of Primary Lateral Branches	1.32	50	8 1.39	50
23 Branch Angle from Central Spike	8.85	50	14 6.58	50
* 452 cm Tassel Length (from top leaf collar to tassel tip)	3.50	50	364 6.52	50
6 Pollen Shed (Rate on scale from 0=male sterile to 9=heavy shed)			6	
14 Anther Color (Munsell code 5R 4/4)			16 (Munsell code 5RP 5/4)	
02 Glume Color (Munsell code 5GY 6/6)			02 (Munsell code 5GY 5/6)	
1 Bar Glumes (Glume Bands): 1=Absent 2=Present			1	
7a. EAR (Unhusked Data):				
* 01 Silk Color (3 days after emergence) (Munsell code 2.5GY 8/8)			01 (Munsell code 2.5GY 8/6)	
01 Fresh Husk Color (25 days after 50% silking) (Munsell code 5GY 6/8			01 (Munsell code 5GY 6/6)	
21 Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5YR) 7/4			21 (Munsell code 7.5YR 7/4)	
* 3 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent			3	
5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight)			5	
2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)			3	
7b. EAR (Husked Ear Data):	Standard Deviation	Sample Size	Standard Deviation	Sample Size
* 163 cm Ear Length	1.33	50	140 1.19	50
* 440 mm Ear Diameter at mid-point	2.50	50	426 2.80	50
1150 gm Ear Weight	23.01	50	830 23.92	50
* 14 Number of Kernel Rows	1.38	50	16 1.64	50
2 Kernel Rows: 1=Indistinct 2=Distinct			2	
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral			1	
109 cm Shank Length	2.70	50	88 1.89	50
1 Ear Taper: 1=Slight 2=Average 3=Extreme			1	
Application Variety Data			Standard Inbred Data	

Note: Use chart on first page to choose color codes for color traits.

8. KERNEL (Dried):	Standard Deviation	Sample Size	Standard Deviation	Sample Size
11.9 mm Kernel Length	.80	50	10.5 .90	50
8.6 mm Kernel Width	.50	50	8.1 .50	50
4.5 mm Kernel Thickness	.50	50	5.0 .90	50
33.9 % Round Kernels (Shape Grade)	3.14	15	35.9 6.34	15
1 Aleurone Color Pattern: 1=Homozygous 2=Segregating			1	
(*) 19 Aleurone Color (Munsell code 2.5Y 8/2)			19 (Munsell code 2.5Y 8/2)	
* 07 Hard Endosperm Color (Munsell code 2.5Y 8/8)			07 (Munsell code 2.5Y 5/6)	
* 03 Endosperm Type: 1=Sweet (su1) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7=High Lysine 8=Super Sweet (se) 9=High Oil 10=Other			03	
29.8 gm Weight per 100 Kernels (unsized sample)	.26	15	234 .45	15

9. COB:	Standard Deviation	Sample Size	Standard Devaition	Sample Size
* 31.9 mm Cob Diameter at mid-point	1.90	50	32.7 2.10	50
14 Cob Color (Munsell code 10R 5/6)			14 (Munsell code 10R 5/6)	

10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested; leave Race or Strain Options blank if polygenic):

A. Leaf Blights, Wilts, and Local Infection Diseases	
__ Anthracnose Leaf Blight (*Colletotrichum graminicola*)	__
__ Common Rust (*Puccinia sorghi*)	__
__ Common Smut (*Ustilago maydis*)	__
5 Eyespot (*Kabatiella zeae*)	__
__ Goss's Wilt (*Clavibacter michiganense* spp. *nebraskense*)	__
__ Gray Leaf Spot (*Cercospora zeae-maydis*)	__
5 Helminthosporium Leaf Spot (*Bipolaris zeicola*) Race 3	7 Race 3
5 Northern Leaf Blight (*Exserohilum turcicum*) Race 1	3 Race 2
__ Southern Leaf Blight (*Bipolaris maydis*) Race ____	__ Race ____
__ Southern Rust (*Puccinia polysora*)	__
__ Stewart's Wilt (*Erwinia stewartii*)	__
__ Other (Specify) _____	__ _____
B. Systemic Diseases	
__ Corn Lethal Necrosis (MCMV and MDMV)	__
__ Head Smut (*Sphacelotheca reiliana*)	__
__ Maize Chlorotic Dwarf Virus (MCDV)	__
__ Maize Chlorotic Mottle Virus (MCMV)	__
__ Maize Dwarf Mosaic Virus (MDMV) Strain ____	__ Strain ____
__ Sorghum Downy Mildew of Corn (*Peronosclerospora sorghi*)	__
__ Other (Specify) _____	__ _____
C. Stalk Rots	
__ Anthracnose Stalk Rot (*Colletotrichum graminicola*)	__
__ Diplodia Stalk Rot (*Stenocarpella maydis*)	__
__ Fusarium Stalk Rot (*Fusarium moniliforme*)	__
__ Gibberella Stalk Rot (*Gibberella zeae*)	__
__ Other (Specify) _____	__ _____
D. Ear and Kernel Rots	
__ Aspergillus Ear and Kernel Rot (*Aspergillus flavus*)	__
__ Diplodia Ear Rot (*Stenocarpella maydis*)	__
__ Fusarium Ear and Kernel Rot (*Fusarium moniliforme*)	__
__ Gibberella Ear Rot (*Gibberella zeae*)	__
__ Other (Specify) _____	__ _____

Note: Use chart on first page to choose color codes for color traits.

Application Variety Data	Page 4		Standard Inbred Data		
11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested):			20000123		
	Standard Deviation	Sample Size		Standard Deviation	Sample Size
__ Banks Grass Mite (*Oligonychus pratensis*)			__		
Corn Earworm (*Helicoverpa zea*)					
__ Leaf-Feeding			__		
Silk Feeding :					
___.__ mg larval wt.	_____	_____	___.__	_____	_____
__ Ear Damage			__		
__ Corn Leaf Aphid (*Rhopalosiphum maidis*)			__		
__ Corn Sap Beetle (*Carpophilus dimidiatus*)			__		
European Corn Borer (*Ostrinia nubilalis*)					
__ 1st Generation (Typically Whorl Leaf Feeding)					
__ 2nd Generation (Typically Leaf Sheath-Collar Feeding)			__		
Stalk Tunneling :			__		
___.__ cm tunneled/plant	_____	_____	___.__	_____	_____
Fall Armyworm (*Spodoptera frugiperda*)			__		
__ Leaf-Feeding			__		
Silk-Feeding :					
___.__ mg larval wt.	_____	_____	___.__	_____	_____
__ Maize Weevil (*Sitophilus zeamaize*)			__		
__ Northern Rootworm (*Diabrotica barberi*)			__		
__ Southern Rootworm (*Diabrotica undecimpunctata*)			__		
Southwestern Corn Borer (*Diatraea grandiosella*)					
__ Leaf Feeding			__		
Stalk Tunneling :					
___.__ cm tunneled/plant	_____	_____	___.__	_____	_____
__ Two-spotted Spider Mite (*Tetranychus urticae*)			__		
__ Western Rootworm (*Diabrotica virgifera virgifera*)			__		
__ Other (Specify) _____			__ _____		
12. AGRONOMIC TRAITS:					
7 Stay Green (at 65 days after anthesis) (Rate on a scale from 1=worst to 9=excellent.)			5		
0 0 % Dropped Ears (at 65 days after anthesis)			0 0		
0 0 % Pre-anthesis Brittle Snapping			0 0		
0 0 % Pre-anthesis Root Lodging			0 0		
0 0 % Post-anthesis Root Lodging (at 65 days after anthesis)			0 0		
___.__ Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)			___.__		

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied)

0 Isozymes 0 RFLP's 0 RAPD's

REFERENCES:

Butler, D.R. 1954. A System for the Classification of Corn Inbred Lines. PhD Thesis, Ohio State University.
Emerson, R.A., G.W. Beadle, and A.C. Fraser. 1935. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180.
Farr, D.F., G.F. Bills, G.P. Chamuris, A.Y. Rossman. 1989. Fungi on Plant and Plant Products in the United States. The American Phytopathological Society, St. Paul, MN.
Inglett, G.E. (Ed.) 1970. Corn: Culture, Processing, Products. Avi Publishing Company, Westport, CT.
Jugenheimer, R.W. 1976. Corn: Improvement, Seed Production, and Uses. John Wiley & Sons, New York.
McGee, D.C. 1988. Maize Diseases. APS Press, St. Paul, MN. 150 pp.
Munsell Color Chart for Plant Tissues. Macbeth, P.O. Box 230, Newburgh, N.Y. 12551-0230
The Mutants of Maize. 1968. Crop Science Society of America, Madison, WI.
Shurtleff, M.C. 1980. Compendium of Corn Diseases. APS Press, St. Paul, MN. 105 pp.
Sprague, G.F., and J.W. Dudley (Editors). 1988. Corn and Corn Improvement, Third Edition. Agronomy Monograph 18. ASA, CSSA, SSSA, Madison, WI.
Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S., Bul. 831, 1959.
U.S. Department of Agriculture. 1936, 1937. Yearbook.

COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

$$GDD = \frac{Tmax + Tmin}{2} - 50°F$$

Tmax≤86°

Tmin≥50°

STANDARD SEED SOURCE: IOWA STATE UNIVERSITY DATA COLLECTED @ WILLIAMSBURG, IA 1999

Additional Description of the Inbred

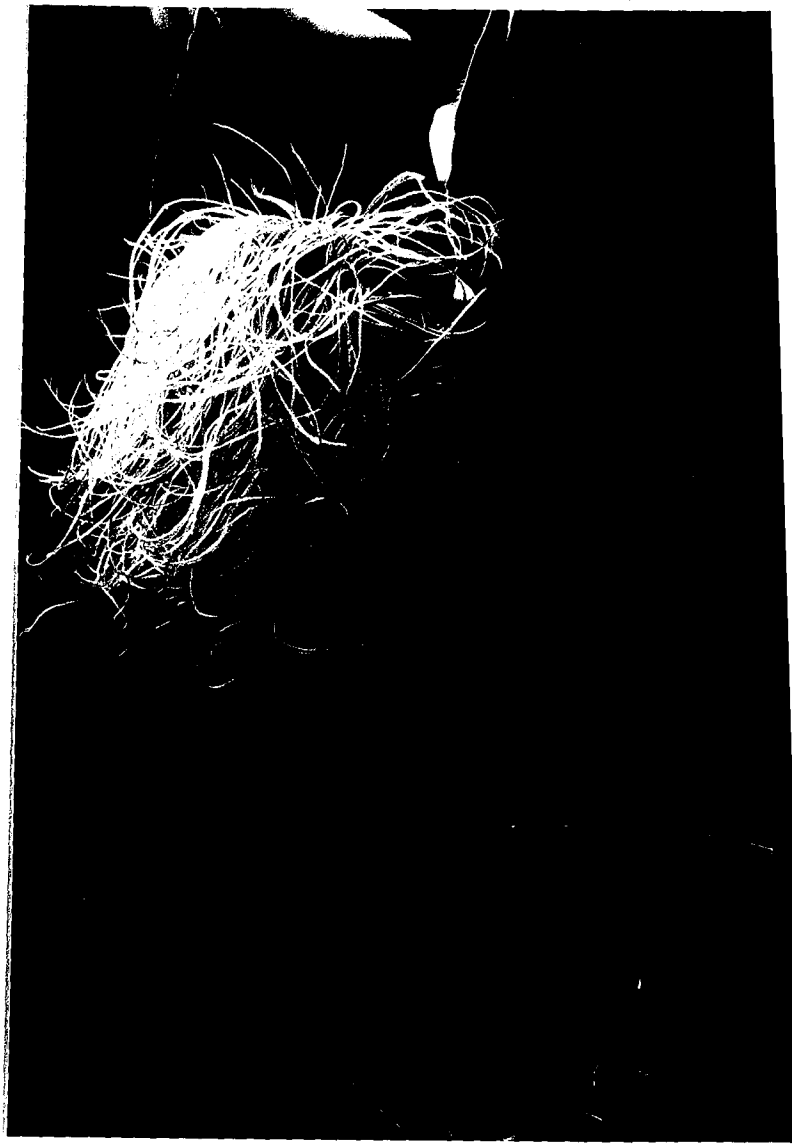
Exhibit D

LH245 is a medium season field corn inbred line with a Stiff Stalk family background that is best adapted to the central regions of the corn belt. LH245 flowers similar to LH132 and in the seed production field, appears to be a very good seed parent.

Hybrids containing LH245 are substantially higher yielding and 1.0% higher in harvest moisture than similar LH198 hybrids. LH245 contributes very good root strength and a girthy ear type to its crosses.

JMS 11/20/01

Exhibit C: After some thought and evaluation, I have concluded that the reason for the large standard deviations in my statistical analysis is poor experimental design. I neglected to take into account the effect the end plants in the row have in my analysis. One to sometimes four plants at the end of each row have a dramatic effect on the standard deviation of the individual plants being evaluated. My understanding of this effect on this statistical function and its contribution to variance components was poor. To correct this flaw in my analysis, I will not allow my technician to measure these end plants. I will also more closely monitor the growth and uniformity of the individual plants in the row being evaluated.



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
HOLDEN'S FOUNDATION SEEDS L.L.C.	Ex4905	LH245

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*	5. TELEPHONE *(include area code)*	6. FAX *(include area code)*
503 S. MAPLEWOOD AVENUE PO BOX 839 WILLIAMSBURG, IA 52361	(319)668-1100	(319)668-2453

7. PVPO NUMBER 200000123

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant *(individual or company)* a U.S. national or U.S. based company? [X] YES [ ] NO
If no, give name of country _____

10. Is the applicant the original owner? [X] YES [ ] NO ***If no, please answer the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?
[ ] YES [ ] NO *If no, give name of country* _____

b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company?
[ ] YES [ ] NO *If no, give name of country* _____

11. Additional explanation on ownership *(If needed, use reverse for extra space):*

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or nationa of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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